

Conducting Financial Sector Surveys in South Africa

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Abstract

This paper describes the manner in which the business tendency survey technique is applied to the financial sector in South Africa. The biggest challenges facing such a survey are the fact that only a few firms operate in the financial sector and the lack of a reference series.

The need for a financial sector survey stems from the fact that the financial sector's contribution to GDP has increased significantly over the last few decades and information on the sector's performance is published with long time lags and is incomplete. The business tendency surveys of only a few countries currently cover the financial sector.

The target population of the financial sector survey was defined in the same way in South Africa as in the UK and Switzerland. Precise information about the sampling frame is not available in South Africa, because the national business register is treated as confidential. A business register, therefore, had to be compiled from different sources. Despite various measures the response rate is low. Substitution is applied to treat non-responses. The South African questionnaire is modelled on those of the UK and Switzerland. It was adapted for local conditions and needs. Firm and sector weights are utilized to calculate totals.

The correlation coefficient reveals a strong positive relationship between the survey results and the corresponding quantitative data in the majority of cases.

Regarding the way forward, a quantitative measure of the performance of the financial sector needs to be compiled from the available data. Such a reference series would serve as a benchmark for the survey results and help raise the validity of the survey results further.

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Introduction

Most of the countries that conduct business tendency surveys (BTS) cover the manufacturing, internal trade (i.e. retail, wholesale and motor trade) and construction sectors. A decade or so ago many countries began to expand the coverage of their surveys to the other services sectors. However, few of these countries cover the financial sector as part of the services sector and those that do, started with the banks.

The Bureau for Economic Research (BER) at Stellenbosch University started conducting business tendency surveys amongst retail and investment banks in 2002. The scope of the survey was expanded to investment managers and life insurers in 2003 and to short-term insurers in 2006.

This paper describes the manner in which the business tendency survey technique is applied to the financial sector in South Africa.

The application of the business tendency survey technique to the financial sector produces a number of challenges.

- The first is that whereas thousands of firms operate in the sectors traditionally covered by business tendency surveys, only a few firms operate in the financial sector. Sampling, non-response and weighting therefore have a bigger impact on the reliability of a financial sector survey's results as the law of large numbers does not apply as in the case of the traditional sectors.
- The absence of an established, discernible quantitative measure of the performance of the financial sector – something comparable to production in the case of the manufacturing sector and sales in the case of the internal trade sector – presents another challenge. Whereas most official statistical agencies publish gross value added figures at a disaggregated level for the manufacturing and internal trade sectors, they only release figures at an aggregated level for the sector covering finance, real estate and business services. The fact that financial sector activity is largely invisible compared to the visibility of manufacturing production and retail sales, also complicates comprehension. Although economists and other researchers agree that the financial sector plays an increasingly important role in economies, few follow the performance of the financial sector closely. Most analysts would, for instance, only mention the financial sector's performance in passing when commenting on the release of the quarterly GDP (gross domestic product) numbers per economic sector. The lack of a reference series, therefore, reduces a financial sector survey's profile, which in turn adversely affects participation in such surveys.

The remainder of the paper is structured as follows. In the first section, the case for a financial sector survey is presented. This is followed by a description of the survey method. The paper ends with the findings of a test of the reliability of the banking survey results. To ease reading, supporting tables and charts were placed in an appendix.

1. The need for a financial sector survey

The need for a financial sector survey stems from the fact that (1) the financial sector's contribution to GDP has increased significantly over the last few decades and (2) information on the sector's performance is published with long time lags and is incomplete.

1.1 The financial sector's contribution to GDP in South Africa

Financial markets pay close attention to data releases of manufacturing production, retail sales, new vehicle sales, building plans passed and mining production. However, no equivalent data series exist for the financial sector.

The BER has been conducting business tendency surveys (BTS) in South Africa since 1954. The BER's business tendency surveys used to only cover the manufacturing, construction and internal trade sectors of the economy. The contribution to GDP of these sectors declined from 41% in the 1970s to 35% during the 2000s.

In contrast, the contribution of the tertiary (service) sector increased from 51% to 65% of GDP over the same time period. This increase can primarily be attributed to the jump in the share of the finance and insurance sector, which increased from 4% to 9% (see Table 1). The share of the finance and insurance sector surpassed that of the mining sector in 1991. It is now South Africa's 5th largest sector, after – in this order – community services, manufacturing, internal trade and business services.

Table 1 Contribution to GDP per economic sector in South Africa

Economic Sector	SIC code	1970-79	2000-07	2007
Primary sectors		17.3	10.7	10.6
Agriculture, forestry and fishing	1	6.2	3.2	3.2
Mining and quarrying	2	11.1	7.5	7.4
Secondary sectors		31.8	24.1	24.5
Manufacturing	3*	24.3	18.6	18.0
Electricity, gas and water	4	2.1	2.5	2.6
Construction	5*	5.4	3.0	3.9
Tertiary sectors		51.0	65.2	64.9
Wholesale, retail and motor trade	61-63*	11.4	13.3	13.2
Catering and accommodation	64*	0.9	1.0	1.0
Transport and storage	71-74*	6.6	5.9	5.5
Communication	75*	1.5	3.9	3.7
Finance, real estate and business services	8	12.7	20.0	21.1
Finance and insurance	81-83*	4.0	9.1	10.2
Real estate and business services	84-88*	8.7	10.9	10.9
Community, social and personal services	9	17.9	21.1	20.3
Public administration & defence; education; health and social work; activities of membership organizations	91-93, 95	17.2	20.0	19.2
Sewerage and refuse removal; recreation, entertainment and sporting activities; other personal services	94, 96, 99*	0.7	1.1	1.1
Total		100.0	100.0	100.0

* Sectors covered by the BER's business tendency surveys.

SIC = The Standard Industrial Classification of all Economic Activities, 5th edition (Potgieter, 2007).

Source of data: Quantec. The nominal value added was calculated as the product of the real value added and output prices.

Although the share of the three sectors covered traditionally by the BER has declined, the composite (synthetic) indicator derived from them continues to be a good business cycle indicator.

However, a need has developed to expand the coverage of the BER's business tendency surveys in order to provide a picture of the performance of a broader part of the economy and to eventually improve the cyclical characteristics of the BER's composite indicator further. As a result the BER expanded the coverage of its business tendency surveys to the financial sector in 2002 and the other (private) services sector in 2005. This increased the sectoral coverage of the BER's surveys from 35% (in terms of 2007 values) to 68% of GDP.

1.2 Information available in South Africa on the financial sector's performance

Despite the importance of the financial sector, current information lags behind. South Africa has one of the most advanced financial sectors of all emerging market economies and its development is in many respects on par with those of industrialised countries – and yet its performance is not measured regularly and consistently.

- Statistics South Africa (Stats SA) publishes GDP (in the form of gross value added, compensation of employees and the gross operating surplus) and employment figures for the sector covering financial intermediation, insurance, real estate and business services with a lag of 2-3 months and no details about the sector's financial performance¹.
- The compulsory monthly DI returns of registered banks, the Bank Supervision Department's Annual Reports and the *Quarterly Bulletins* of the South African Reserve Bank (SARB) provide detailed information about the performance of banks, but the information is made public with a lag in time².
- The quarterly reports of short and long term insurers of the Financial Services Board (FSB) are published with a 1½ month time lag. The two annual publications of the FSB, namely the Retirement Funds and the STAR report (Short-Term Insurance Annual Report), also provide useful information, but with a long time lag.
- The interim and annual reports of listed financial companies provide information about their performance, but these reports appear at irregular intervals (their release dates depend on the financial year-ends of the companies in question) and the results are not always comparable.
- Price Waterhouse Coopers (PWC) conducts a survey on strategic and emerging issues facing the banking and insurance sector annually.
- Twice a year the Life Office's Association (LOA) releases information on the performance of the industry during the preceding 6 months. This information becomes available with a 4 month time lag.
- The investment performance and strategy of investment managers are measured regularly but no regular, consistent measure of the income and expenditure of investment managers exist.
- The Association of Collective Investments (ACI) publishes the performance of unit trusts³ 2 weeks after the end of the quarter.

¹ Links to the web pages of all the institutions mentioned in this section are provided in the Reference section at the end of the article.

² The DI 200 returns make each bank's balance sheet public with a 2-4 month time lag. The DI 900 returns reveal the combined income statement of all banks with a 3-5 month time lag. The annual report is published with a 6 month time lag and the *Quarterly Bulletin* with a 3 month time lag.

³ Unit trusts are called mutual funds in the USA.

- Alexander Forbes conducts a Large Managers Watch of Retirement Fund Investment Managers survey on a monthly, quarterly and annual basis.

Given that information on the performance of the financial sector lags in South Africa, there is a general consensus on the need for a regular, consistent and impartial financial sector survey, from financial sector managers to financial analysts.

2. The survey method

2.1 The international experience with conducting business tendency surveys in the financial sector

The business tendency survey technique basically consists of asking the same group of people the same questions every quarter. In this manner trends are established. Respondents do not have to provide their views on GDP growth or inflation for instance, but only on issues they work with every day, namely how their businesses are performing. Typical questions are on whether the volume of new business, income or costs are “up”, “the same” or “down” compared to the same quarter a year ago.

Whilst many institutions have been conducting business tendency surveys in the manufacturing, internal trade and construction sectors for many years, they have only started covering the other services sector in recent years. In the European Union (EU) 4 countries started in 1993-95, 11 in 1996-99 and 12 in 2000-03 (EU, 2004: 35). A harmonised services survey was introduced in the EU in 1996 (EC, 2006: 15). In the USA, the Institute for Supply Management (ISM) started covering the non-manufacturing sector in 1997. The reliability of the results of all these surveys has not yet been established.

To the knowledge of the author, only a few countries conduct financial sector surveys. In the United Kingdom (UK), the Confederation of British Industries (CBI) in London has been conducting comprehensive quarterly financial sector surveys in partnership with Price Waterhouse Coopers since December 1989. The Swiss Business Cycle Institute (KOF) in Zurich has been conducting a quarterly banking survey since the beginning of 2000 and an insurance survey since a year or so later. The reason why financial sector surveys were first developed in these countries is probably because of the status of London and Zurich as world financial capitals. In Poland, the Research Institute for Economic Development (RIED) at the Warsaw School of Economics has been conducting a banking survey since 1999. Details about the banking survey conducted in Germany were unavailable at the time of writing. Most of the European Union (EU) countries that conduct other service sector surveys either exclude the financial sector or do not report at this disaggregated level (EU, 2004: 35). After conducting a pilot survey in 2006, the Directorate-General for Economic and Financial Affairs began a EU wide monthly survey of the financial sector in 2007 (EC, 2006: 3, 42).

Outside Europe, the National Australia Bank (NAB) Business Survey covers the financial sector. The Bank of Japan (BOJ) covers the financial sector as a supplement to the Tankan. The starting dates of these surveys were unavailable at the time of writing. In the USA, the Federal Reserve Bank (FRB) has been conducting a “Senior Loan Officer Opinion Survey on Bank Lending Practices” since 1990, but unlike the UK and Swiss banking surveys, it focuses on bank lending practices and not the performance of the banking sector. The European Central Bank (ECB) Bank started a similar survey in 2003.

The BER started conducting business tendency surveys amongst retail and investment banks in 2002. The scope of the survey was expanded to investment managers and life insurers in 2003 and to short-term insurers in 2006.

Ernst & Young, the international accounting and business advisory firm, not only supports the financial sector survey in South Africa financially, but has also provided valuable inputs to its design and makes the overall results public. The BER, however, is responsible for all the research and analysis and does not reveal the names of participants and individual responses to third parties, including the sponsoring firm.

2.2 Sample design

2.2.1 Target population

The financial sector needs to be defined in order to establish which firms must be included in a survey. The standard industrial classification (SIC) system served as the starting point (see Table A-1⁴). Five sub-sectors were differentiated, namely retail banking, investment banking, investment management, life insurance and short-term insurance. These sub-sectors agree with the financial firm types most frequently found in practice in South Africa. This classification, therefore, matches the institutional arrangement in South Africa the closest.

The UK differentiates 11 sub-sectors. The most important sectors in terms of weighting are banks (with a weighting of 0.34), general insurance (0.11), life insurance (0.14), securities trading / stock broking (0.11) and fund management (0.12). The remaining sub-sectors – namely finance houses, insurance brokers, commodity brokers, private equity and other financial institutions – have a combined weighting of only 0.18 (CBI, 2003: 51).

Switzerland distinguishes between banking and insurance. In the case of insurance, they differentiate between life and non-life business (KOF).

For reasons of focus, the following financial institutions are not covered in South Africa as part of the financial sector survey, namely public financial institutions (e.g. the Reserve Bank, the Land Bank, the Post Bank and the official pension and provident funds administered by the Public Investment Corporation, the Industrial Development Corporation and the Development Bank of Southern Africa), medical insurance schemes, the unregulated (informal) micro-lending and savings industry (such as stockvels⁵ and burial societies), retailers providing credit (e.g. the JD Group, Edcon, Woolworths) and individual insurance brokers / agents. (The coverage per 4th digit SIC code is provided in Table A-1.) The survey also only focuses on the supply of financial services and not on the demand for such services, which stems from government, businesses, households and the rest of the world.

Some holding companies have operating / business units in more than one sub-sector covered in the financial sector survey. For instance, the holding company ABSA consists of a retail bank ABSA and an investment bank ABSA Capital. Although much smaller compared to the other two sub-sectors, ABSA also operates an investment management, a life insurance and a short-term insurance business unit (see Table A-2). Another example is Old Mutual⁶. Old Mutual is not only the biggest life insurer in South Africa, but also holds large stakes in the short-term insurer Mutual and Federal, as well as the fourth biggest bank, Nedbank. Furthermore, it is also one of the largest investment managers in South Africa. A year or two ago the structure of its investment management unit, OMIGSA, was changed from a single entity to one consisting of multiple, independent investment boutiques.

⁴ The letter "A" is included in the table number to point out that the table appears in the appendix (A).

⁵ Stokvels are informal / unregulated savings clubs, where people that know one another contribute to a communal savings pool and either members take turns to receive the whole pool or it gets distributed before Christmas.

⁶ Old Mutual was founded many years ago in South Africa. A few years after demutualization in 1998, Old Mutual moved its primary listing from the Johannesburg to the London stock exchange. Given its importance in South Africa, it is classified separately and not as part of the foreign group.

The South African financial sector is highly concentrated. For example, four banks dominate the retail⁷ and five the investment banking sector⁸. Likewise, five companies dominate the life⁹ and four the short-term insurance sector¹⁰. The number of potential participants in a financial sector survey is therefore relatively low in South Africa, as a small number of large firms dominate the sector.

To improve the measurement of financial activity and get as closely as possible to a homogeneous kind-of-activity unit¹¹, the five sub-sectors were subdivided further. These kind-of-activity units corresponds closest to the business units (profit centres) of financial firms found in practice.

In the case of retail banks, the following business units are distinguished:

- private banking (for high net worth individuals),
- micro-lending (for low-income individuals who are employed in the informal / unregulated sector of the economy and previously did not have bank accounts),
- retail banking (for all other individuals; this category includes transactional banking, credit cards and home loans),
- business (or commercial) banking (for small and medium-sized private enterprises (SMMEs) and the agricultural sector),
- corporate banking (for large listed companies, public sector corporations, government departments and provinces) and
- asset and fleet financing (i.e. instalment sales and leasing finance).

In the case of investment banks and specialised finance, the following business units are differentiated:

- corporate finance (includes the provision of financial advisory services to listed companies related to mergers and acquisitions, divestitures, restructurings, spin-offs, joint ventures, capital raising and management buyouts, as well as valuations, feasibility studies and due diligence reviews),
- private equity and direct investments (comprise the active seek and selection of expansion and buyout investments as principal in primarily unlisted companies),
- project finance (includes property finance),
- treasury and specialised / structured finance (comprise structured finance, asset finance, acquisition finance, financial products, corporate treasury, debt restructuring, cash flow management, tax structuring and balance sheet management, as well as trading of commodities, foreign exchange and various financial instruments) and
- stock broking.

⁷ ABSA, First National Bank, Standard Bank and Nedbank

⁸ ABSA Capital, Rand Merchant Bank (RMB), Nedbank Capital, Standard Corporate and Merchant Bank (SCMB) and Investec Bank

⁹ Old Mutual, Sanlam, Momentum, Metropolitan and Liberty

¹⁰ Santam, Mutual & Federal, Hollard and Zurich SA (previously SA Eagle).

¹¹ According to the OECD (2003: 118) "a kind-of activity unit is an enterprise, or a part of an enterprise, in which the principal productive activity accounts for most of the value added" regardless of the location of the activity. In South Africa, the kind-of-activity units are taken as the reporting units. The response units are taken as the most senior managers of the kind-of-activity units.

Why is it necessary to distinguish between retail and investment banks? Investment banks are branded separately and regarded as independent business units / profit centres in South Africa. Financial statements of holding companies also differentiate between these two sub-types. FirstRand even have two brands, namely the retail bank First National Bank (FNB) and the investment bank Rand Merchant Bank (RMB). Whereas transactional banking makes up the core business of retail banks, loans to the public sector and large corporate firms dominate in the case of investment banks. They are therefore regarded as different kind-of-activity units.

Although the distinction between retail and investment banks has the advantage that it models the survey design more closely to reality, it has a drawback in so far as it complicates comparisons between the survey and available quantitative data (e.g. that of the Bank Supervision Department of the SARB) that does not differentiate between retail and investment banks.

The sub-sector is referred to as investment banks and specialised finance to provide for financial firms that do not have banking licences, but do operate in this sector. The financial firm, Brait, is a good example. Brait used to operate as an investment bank until it allowed its banking licence to expire in 2002 at the time of the small banking crisis. The firm now specialises in private equity.

Private investment management consists of the management of institutional (pension), retail (unit trust) and private client funds. Institutional business, in turn, is made up of the management of private pension funds, life funds¹² and funds that the Public Investment Corporation (PIC) contracted out to private investment managers.

Multi-managers are excluded, i.e. firms administering platforms that spread investments across different unit trust management companies. For example, the firm Investment Solutions (which is part of Alexander Forbes) enables clients to invest in unit trusts offered by a variety of firms. Such businesses are excluded to prevent double counting. Only the company offering the unit trust is surveyed.

The coverage of the investment management survey will be expanded to hedge fund managers in due course.

Life insurers' business consists of individual business and group schemes. Individual life insurance, retirement annuities and investment contracts (endowments) make up individual business. Group schemes consist of group life insurance and employee benefits. Employee benefits, in turn, are made up of own business and third party administration (i.e. the management of funds of private pension schemes and PIC investments with life insurers). In the case of individual life, individuals / private persons are the clients. In the case of group life insurance and employee benefits, firms are the clients.

In South Africa, the retirement fund industry consists of (1) the official funds (i.e. the pension funds administered by the Department of Finance, Transnet, Telkom and the Post Office on behalf of their respective employees), (2) the private self-administered pension and provident funds, (3) underwritten funds (i.e. insurance policies and group insurance schemes) and (4) the bargaining council funds (SARB, 2008: 41-42)¹³.

The financial sector survey covers only parts of 2 and 3 listed above:

¹² Most life insurers created their own independent investment managers. Some life insurers contract all their asset management business out to the investment manager within their group, whereas others have begun to also contract it out to managers outside the group. Whereas some investment managers that are part of a life insurer group have a captive market of the life insurer's business, others must compete with other third-party managers for the insurer's business.

¹³ According to the FSB (2007: 48), the official funds held 37%, the private self-administered funds 45%, the underwritten funds 17% and the bargaining council funds 1% of total retirement fund assets in 2005.

- The financial sector survey covers the private self-administered pension funds (number 2) in as far as they contract public financial firms to manage their assets. Such assets are regarded as the institutional business of investment managers. However, trustees still manage the assets of the majority of private self-administered pension funds – many of whom are quite small in terms of assets and number of members – in South Africa. These fund managers are not covered in the financial sector survey.
- The underwritten pension funds (number 3) are covered by means of the group life and employee benefits sub-division of the life insurance survey.

The FSB (2007: 38) differentiates between typical, niche (specialist), cell captive and captive short-term insurers, in addition to re-insurers. Presently the scope of the financial sector survey is restricted to typical short-term insurers.

In all, the target population of the financial sector survey is broadly defined in the same way in South Africa as in the UK and Switzerland. These surveys differ from the lending practices surveys of the Federal Reserve and European Central Bank, where the target population is the regional offices of the banks setting the credit standards.

2.2.2 Sampling frame

Statistics SA maintains a national business register, but it is only accessible to the public under certain conditions. A census of the financial sector is not available. Other sources of information must therefore be consulted to describe the financial sector. A survey frame was compiled from, *inter alia*, the following sources:

- the annual reports of the official supervisory bodies (e.g. the Bank Supervision Department of the SA Reserve Bank and the FSB),
- senior managers responsible for financial services at Ernst & Young¹⁴, the firm sponsoring the financial sector survey in South Africa,
- Profile's annual Financial Markets Directory (Smith, 2008),
- the annual reports of listed financial firms,
- the web pages of financial firms,
- the annual reports and web pages of industry associations (e.g. LOA, ACI) and
- media reports¹⁵.

2.2.3 Response units

The biggest challenge faced by the researcher who wishes to apply the business tendency survey technique to the financial sector is the low number of responses per survey, which stems from the small target population and a low participation rate.

Kind-of-activity units are used as reporting units. Using kind-of-activity units instead of enterprises have the additional benefit of increasing the potential number of participants. However, the

¹⁴ Their knowledge of the sector stems from the fact that they are the auditors of a number of financial firms and offer advisory services to the whole industry.

¹⁵ Institutional (i.e. take overs, bankruptcies and new creations) and key staff changes are reported in a variety of dailies and weeklies. The Financial Mail's annual *Top Companies* special report provides a good summary of the previous year's developments.

disadvantage of using kind-of-activity units is that it makes the calculation of results per region impossible (OECD, 2003: 18-19).

Response units are carefully selected and approached on the basis of their position in the financial world. The head of retail banking or the head of group life insurance is quizzed and not the chairperson of the board of directors of the group or holding company. Divisional heads tend to be best informed about their business units. Typically the CEO (chief executive officer) or most senior manager of the division – or in the case of small firms, the whole firm – is targeted. The CFO (chief financial officer) and CIO (chief investment officer) are generally not approached.

It is rather difficult to create and maintain an up to date business register of the financial sector. The financial sector is characterised by constant change – existing firms merge (consolidate)¹⁶, foreign firms enter and exit¹⁷, new firms appear and old ones disappear¹⁸. It is also difficult to keep track of who is heading business units. Key personnel change continuously due to the dynamism of the industry and the worldwide shortage of people with experience in the financial sector.

The management structures of financial firms differ. This affects response units' ability to answer questions. For example, the head of a small bank will be in a position to respond to all variables on the questionnaire. However, the head of the business banking sub-division of a large bank may not be in a position to respond to the questions on, for instance, net interest or investment income, as these activities are centralised in a treasury department.

2.2.4 Sampling method and panel creation

The sample design consists of two steps: First the target population (universe) is stratified in terms of the size of enterprises and the kind of activities they are engaged in. Purposive sampling (or judgemental selection) is then used in a second step to put together a sample. Purposive (non-random) sampling means that units are selected from the target population with the intention that they should be representative of that universe. This method stands in contrast to random sampling where the probability of the selection of a specific unit from all the units in the target universe is known.

¹⁶ For instance, in 2002 the 6th largest bank, Saambou, was put under curatorship after it experienced solvency problems. This led to liquidity problems at the 5th largest bank, BoE, which were resolved when the 4th largest bank, Nedbank, took it over. The liquidity problem spread to other small and medium-sized banks and many ceased to exist as banks (e.g. Brait and PSG) or as businesses at all (African Merchant Bank, Corpcapital and Gensec Bank). In 2005, the 3rd largest life insurer, Momentum, took over the 5th largest one, Sage, when the latter ran into solvency problems. Other examples of consolidation include: ABSA took over Unifer, MLS bank and MEEG. Nedbank took over People's Bank. Liberty Life took over Capital Alliance and Rentsure in 2004 / 5. Sanlam took over African Life and Channel Life at the same time. The investment management arm of Old Mutual took over Marriot in 2005 and Umbono Fund Managers in 2007, as well as acquired the majority stake in Futuregrowth in 2008.

¹⁷ International investment banks opened or expanded existing offices when the government announced plans to privatise public corporations in the late 1990s / early 2000s. Many of these foreign banks scaled down their operations or withdrew from the South African market when the scale of the privatisations disappointed. Examples of foreign firms acquiring stakes in South African financial firms include the following: Standard Chartered Bank of the UK acquired an internet based bank, Twenty20, created in the early 2000s, but closed it down after a short time. Barclays Bank from the UK acquired a majority stake in ABSA Bank in 2004 and the Industrial and Commercial Bank of China (ICBC) purchased 20% of Standard Bank in 2007. South African financial firms also moved overseas. Examples include: Old Mutual moved its primary listing to the London Stock Exchange, from where it acquired stakes in US and Swedish financial firms. Investec moved half of its share capital to the London stock exchange. Standard Bank acquired banks in Argentina, Nigeria and Kenya in the past two years.

¹⁸ A large number of niche (boutique) investment managers appeared (e.g. RE: CM, 36 One, Cannon, JM Busha, Orthogonal Investments) and disappeared (e.g. African Harvest, Decillion, Fidentia, Quaystone) over the last few years. Old Mutual founded Old Mutual Bank, but closed it down after a short while.

A number of assumptions have to be made about the extent to which the sampling units are representative of the target population before one could draw inferences about the universe based on a purposively selected sample. Inferences that can be drawn from purposive samples are limited by the fact that the sampling units' probability of selection is unknown. However, practical experience has shown that non-random samples produce acceptable results when used for business tendency surveys (OECD, 2003: 20-21).

In the case of random sampling, no assumptions about representativeness are needed in estimating totals or averages for the target population. In addition, there are well known techniques for determining the precision of these estimates. However, random sampling only produces unbiased results if a comprehensive and up to date business register exists (OECD, 2003: 19-20). Given that such a business register does not exist for the financial sector in South Africa, purposive sampling was the only practical alternative.

The preferred method of conducting business tendency surveys is to establish a fixed panel and introduce new responding units at regular intervals. A panel means that the same sample of participants is surveyed from one quarter to the next. Panel based surveys are cut out for longitudinal research, as changes in the results from one quarter to the next can then be attributed to a greater degree of certainty to an actual change in the variable in question and not because of the participation – or not – of particular reporting units. The OECD (2003: 22) notes that “changes in results between consecutive surveys based on a stable panel sample have as a rule a smaller variance than results derived from completely independent surveys”.

2.2.5 Sample size and representativeness

In assessing the reliability of the results of any type of sample survey, it is customary to distinguish between sampling and non-sampling errors. Sampling errors arise because the results are based on a selection of units and not from the entire target population. Provided the survey is based on a random sample, errors arising from this source will be stochastic, i.e. they will be as likely to understate as to overstate the values that would be obtained from a complete enumeration and the mean of the errors drawn from repeated samples will be zero. Non-sampling errors arise from many sources. They include defects in the sampling frame due to an incomplete or out of date business register, improper selection of the sampling units or refusal by some selected units to provide information (OECD, 2003: 25).

To ensure reliability of the survey results, sampling and non-sampling errors have to be minimised. However, purposive sampling and a high non-response rate complicate this task. Therefore extra effort must be put in and care taken to ensure that the actual responses are not biased.

Yet it is fitting to keep in mind that the representativeness of the sampling units of qualitative surveys has a significantly smaller impact on the reliability of the survey results than those of quantitative surveys. In the case of a quantitative survey respondents have to provide an amount in rand for the activity in question so that the total or level can be calculated. A biased selection of respondents and a high non-response rate therefore have a big impact on the total. In contrast, a qualitative survey – such as the financial sector survey – the (weighted) view of the majority of respondents on a particular activity is taken as an indication of the direction and strength of the trend in the activity in question. The majority view is therefore established and not the actual size.

Members of the target population not selected during sampling are also treated differently in quantitative than in qualitative surveys. In the case of quantitative surveys, the results of respondents are weighted (multiplied by a factor so that the aggregate agrees with the total derived from a census / benchmark survey) to provide for those that were not selected. In the case of a qualitative survey – such as the financial sector survey – no provision is made for those that were not selected during

sampling or were selected, but did not respond, as it is implicitly assumed that their performance corresponds with those of the participants, the so-called missing at random assumption (MAR) (EC, 2006: 51). This is a reasonable assumption, given that (1) the same factors impact on firms in the same sector (the performance of firms therefore tend to reveal the same trend) and (2) the responses cannot vary indefinitely (as is the case with a quantitative survey), but is limited to “up”, “the same” or “down”. According to the OECD (2003: 22) “business survey data are measured on an ordinal scale and the variance of ordinal-scaled data is usually significantly lower than that of metrically-scaled data”. So, the non-participation of Mr. X and Y do not impair the validity of the financial sector survey and their future participation will not improve the validity of the survey as long as their responses do not deviate systematically from those of the participants. The reliability of a qualitative survey is enhanced if this claim can be proved. If the survey results correspond with a reference series, then one could say with a high degree of certainty that those members of the target population that do not participate experience similar conditions than those that do participate.

To establish the degree of representativeness, in depth knowledge of the sampling frame and response units is required. This information is provided in the next two sections.

2.2.5.1 Information on the sampling frame

As stated earlier in the article, precise information about the sampling frame is not available, because the national business register is treated as confidential. The author, therefore, had to compile a sampling frame (business register) from different sources.

The number of businesses targeted in the financial sector survey compared to the number that should be targeted according to selected other sources is summarized in Table 2.

Table 2 Number of enterprises in the sampling frame according to different sources

	Banks (retail and investment)	Investment managers	Life insurers	Short-term insurers
Author's estimate	82	64	21	16
Profile's Financial Market Directory (FMD) *	77	321	56	78
Dept. of Bank Supervision, SARB *	77			
Financial Services Board (FSB) #		13 020	46	30
Life Office Association (LOA) #			28	
Association of Collective Investments (ACI)		35		

* Retrieved from the institution's web page

As published in the most recent edition of the institution's annual report

The main reasons why the author's number of enterprises differs from those of the selected other sources include the following:

- The author's estimate of the number of banks is higher than those of the other sources, because the author reports on the number of business units per group, whereas the other sources only

reflect the number of registered banks¹⁹. The author's number is increased further by the fact that some groups have more than one business unit per sub-sector²⁰.

- The number of asset and portfolio managers listed in Profile's *Financial Market Directory* (FMD) is much higher than those of the author, as the FMD includes hedge funds and small, private (i.e. firms that do not take on business from the general public) pension fund managers. Many of these private pension fund managers are dormant and about 80% have less than 100 members (Masie, 2008:70). The number of private self-administered pension funds approved by the FSB is so high for the same reason. The ACI's number is lower than that of the author, as it only includes association members.
- The author's estimate of the number of life insurers is lower, because it does not account for the very small, specialised firms.
- The same reason applies for the author's lower number of short-term insurers. Another reason why the number of short-term insurers according to Profile's FMD is higher than the author's estimate is that the FMD also includes re-insurers.

2.2.5.2 Information on the response units

The response units are approached after the sampling frame is compiled. As mentioned previously, divisional heads are the preferred response units.

The biggest challenge to develop any longitudinal survey is firstly to get people to participate and then secondly to sustain participation. Business tendency surveys have proved to be quite effective in overcoming these two challenges.

We took the following steps to ensure participation:

- involved industry associations²¹ in the design and tried to get their support,
- visited key firms and people in the financial sector to gather their support,
- kept the questionnaire short, relevant and easy to complete,
- send copies of the survey results to participants as token of appreciation for their inputs when the results are made public,
- raise the public profile of the survey results and
- the BER with its university connection and reputation for solid research, conducts the survey and guarantees the confidentiality of participants and individual results.

Participation is voluntary. This fact and the confidentiality of the responses add to the honesty and candour of participants.

Before invitations to participate are sent out, we first phone the firms to check the contact details of all the potential new participants for correctness. Invitations to participate include (1) a letter of introduction, (2) a brochure describing the rationale for the survey and spelling out the benefits of

¹⁹ According to the Department of Bank Supervision of the SA Reserve Bank (SARB), there were 13 locally controlled registered banks, 5 foreign controlled registered banks, 14 registered branches, 2 registered mutual banks and 43 registered representative offices of foreign banks at the time of writing.

²⁰ For example, the FirstRand group has two private banks, namely RMB Private Bank and FNB Private Bank. So does the Nedbank Group, namely BoE Private Clients and Nedbank Private Bank.

²¹ The author and people from Ernst & Young (the sponsoring firm) met with the Banking Council, the Department of Bank Supervision of the SARB, the LOA and the ACI to get their input on the design of the survey and to generate support before each of the sector surveys were started.

participation to the person completing the questionnaire and (3) a copy of the questionnaire. Invitations are sent by post 4 weeks before the questionnaire is due. This is followed up by an e-mail with the questionnaire attached as an electronic form 2 weeks later and by a fax one week later.

Those that respond to the invitations are included in the panel.

Despite this effort, the response to invitations is disappointingly low²². Reasons for the low response are, among other things, a shortage of time, an unwillingness to do something for the public good, a feeling that the cost of completing the survey outweighs the benefits, a high response burden (due to supervisory requirements and other surveys), a fear that company secrets will accidentally be revealed or stock exchange rules be trespassed and a high staff turnover. In some cases the secretaries of divisional heads act as obstacle (e.g. when they prevent the questionnaires from getting to their bosses), but in other cases they assist (e.g. when they encourage their bosses to complete the questionnaire).

Once on the panel, a questionnaire is sent to the response unit every quarter. As in the case of recruitment, non-responses are followed-up twice before the results are processed. The response rate of those on the panel is about 50%²³. Respondents are occasionally unable to respond due to high workloads, travelling or holidaying. Individual responses are tracked and respondents that have not participated once during the preceding eight quarters are removed from the panel every two years.

To obtain a reasonable number of effective responses every quarter, new survey units need to be introduced every quarter instead of every 2-3 years as is the case with the BER's other surveys. The panel is therefore not fixed anymore.

Unless somebody specifically indicates that they do not want to participate, people are invited once more (after two to three years) if they did not respond the previous time. Such continuous recruitment effectively boils down to exhaustive sampling (EC, 2006: 53). Eventually all possible response units of all reporting units will be approached. At that stage further recruitment will not produce more response units and a higher participation rate, as everybody that could possibly participate would by then have been invited.

Such continuous recruitment and the high non-response rate increase the variance of the survey results between subsequent quarters, which unfortunately reduces the certainty with which one can attribute a change in survey results to a corresponding change in the measured phenomenon.

2.2.5.3 Representativeness

The overall representativeness of the survey depends on the representativeness of (1) the panel and (2) the effective responses per quarter.

To find out how well the panel represents the target population, the appropriate size of the panel must first be established. The following formula can be used to determine the appropriate sample size:

$$n = \sqrt{N * (1 - 0.95) * 20}$$

where n is the size of the sample, N the size of the target population and (1-0.95) the 95% confidence level (Van der Merwe, 1986: 76). According to this formula, the sample size is 60 if the

²² The response rate of the first round of recruitment of banks was 39% (first quarter of 2002), investment managers 33% (first quarter of 2003), life insurers 66% (third quarter of 2003) and short term insurers 42% (second quarter of 2006). The response rate of subsequent rounds of recruitment varies. It is mostly less than 50%.

²³ The response rate of the Swiss financial sector survey is 75% (Bloesch & Etter, 2004: 35) and that of the EU survey 24% (Henry-Biabaud & Spadaro, 2006: 14). The average response rate of the services sector surveys of the EU countries is 62%. The minimum response rate is 14% and the maximum 100% (OECD, 2005).

population size is 183. However, if the population is stratified, then the sample must consist of 40 banks (given a population size of 82), 36 investment managers (64), 21 life insurers (21) and 16 short term insurers (16).

According to the OECD (2003: 22) “a rule of thumb is that about 30 reporting units are sufficient to obtain an acceptable level of precision for each strata for which data are to be published ... [However,] in practice this is a maximum because some kinds of activity will be dominated by a few very large enterprises so that two or three responses might suffice”.

During the second quarter of 2008, 77 (or 42%) of the 183 financial firms in the target universe were on the panel (see Table A-2). The sub-sectors vary: 15 (45%) of the 33 retail banks, 11 (22%) of the 49 investment banks, 31 (48%) of the 64 investment managers, 12 (57%) of the 21 life insurers and 8 (50%) of the 16 short-term insurers participated. The main reasons why the target population is significantly larger than the panel in the case of investment banking, is that few of the many small foreign investment banks included is on the panel.

The number of respondents in South Africa is in the same order as in the UK. For example, during the first quarter of 2003, the following number of firms responded in the UK: 16 banks, 8 finance houses, 16 building societies, 8 general insurers, 15 life insurers, 21 securities traders / stock brokers, 17 insurance brokers, 9 fund managers and 8 other financial institutions (CBI, 2003: 51). A total of 118 firms responded. Excluding the insurance brokers (which are not covered in South Africa) a total of 101 financial firms replied.

The European Commission managed to recruit 2 400 of the 24 000 financial firms contacted for its financial sector survey during 2006. Of the 2 400 firms on the panel between 450 and 550 respond regularly (EC, 2006: 15; Henry-Biabaud & Spadaro, 2006: 7,15).

To establish the degree of representativeness, it is not enough to only compare the number of respondents *vis-à-vis* that of financial firms in the target population. One should also consider representativeness in terms of other characteristics, such as the size of the firms.

The Department of Bank Supervision of the Reserve Bank publishes the balance sheets of the registered banks every month, the so-called DI 900 returns. The banks on the panel (i.e. both retail and investment banks) accounted for 95% of total assets of registered banks in December 2007. Furthermore, the participants were responsible for 96% of total loans and advances, 89% of instalment debtors and leases, 99% of mortgages, 100% of credit card debtors, 81% of foreign loans and 95% of overdrafts and loans.

During the second quarter of 2007, the Association of Collective Investments' (ACI) publication of the value of the total assets of unit trusts per firm, Alexander Forbes' Manager Watch Survey of Retirement Fund Investment Managers and financial and media reports²⁴ were used to calculate the size of funds under management of 35 investment managers. The rest of the firms making up the target population were not covered by either the ACI or Alexander Forbes. They were therefore deemed small and no further effort was made to obtain data for them.

The data shows that large (with funds under management of more than R20bn) and medium-sized firms (R10bn – R20bn) each made up a quarter and small firms (less than R20bn) half of the

²⁴ The claimed size of funds under management of firms is on average more than twice as big as the sum of the funds reported in the ACI and Alexander Forbes publications, as the former includes life funds. We could not determine to what extent the claimed fund sizes are comparable and provide for double counting. During 07Q2 we also asked respondents to classify themselves as small, medium or large based on the same categories used in our analysis. The classification of those firms that responded, agreed with our findings.

total number of firms in the target population during the second quarter of 2007. Unit trusts made up 16%, pension funds 27% and life funds²⁵ 57% of the total value of funds under management.

During the second quarter of 2007, 22 of the 35 firms for which data was available, was on the panel. The value of the total funds under management of the participants accounted for 63% of the grand total. The unit trusts of the participants made up 49% and their pension funds 59% of the respective totals.

In addition, 17 of the top 20 asset managers listed in the Financial Mail *Top Companies* special report of 2008 (Cranston, 2008c: 136) participated in the investment management survey during the second quarter of 2008.

The Financial Mail *Top Companies* special report of 2008 list Old Mutual, Liberty Life, Sanlam, Metropolitan and Discovery as the top five life insurers in South Africa (Cranston, 2008a: 70). All five companies participate in the financial sector survey. So far we have managed to get only one of the top three short term insurers listed to participate in the survey (Cranston, 2008b: 74).

In all, the participants of the financial sector survey in South Africa represent the target population adequately in terms of both the number and size of firms.

However, it is of little use to develop the best sampling frame and select response units in the most unbiased way (requirement number 1 above) if the selected response unit does not participate in practice (requirement number 2 above). Given the low effective number of responses per quarter, we had no choice but to utilize substitution to provide for participants that do not respond during a particular quarter. (The method of imputation is dealt with later in the article.)

2.3 Questionnaire

2.3.1 Choice of questions

How does one measure activity in the financial sector? In the case of the manufacturing sector, production is the obvious choice, but what does one use in the case of the financial sector? The rationale for the selection and wording of the questions are provided below.

The South African questionnaire is modelled on those of the UK and Switzerland. It was adapted for local conditions and needs. Furthermore, it also includes the questions on credit standards for approving applications for loans and credit lines from the Senior Loan Officer Opinion Surveys.

Respondents are surveyed on the current and expected changes in income, expenses and profitability with respect to only their South African operations. Industry specific issues, such as banks' credit standards and the demand for various products of investment managers, are only covered during the first and third quarter surveys.

The UK questionnaire is nearly identical for all the sub-sectors. Switzerland has different questionnaires for banking and insurance. On the insurance questionnaire, life insurers must complete certain parts and non-life insurers other parts. South Africa has customised questionnaires for each sub-sector. The fact that respondents recognise the terms at once²⁶ and they do not have to pick out the parts of the questionnaire relevant to them, make the South African questionnaire simpler and easier to complete than the UK one and consequently has the advantage of encouraging participation.

²⁵ The life funds category includes a residual item, which is the difference between the claimed size of funds under management and the sum of the value of unit trusts, pension funds and – if available – life funds.

²⁶ For example, in the UK different parts of the question “value of net interest, investment or trading income” is relevant to respectively a banker, investment manager and insurer.

However, the disadvantage is that not as many totals for the financial sector can be calculated as in the UK, as there are few variables that are the same across all the sub-sectors.

The South African, UK and Swiss questionnaires are summarised in tables A-2, A-3 and A-4. This comparison reveals that:

- In the case of the banking questionnaire, 8 variables are included in all three countries and 8 variables in two of the three countries. In the case of the insurance questionnaire, 7 variables are included in all three countries and 6 variables in two of the three countries. Only South Africa and the UK conduct an investment management survey. Nine variables are included in both countries (see Table A-5).
- There are only four variables that are covered in all the surveys by all the countries, namely rating of the overall business situation, change in income²⁷, change in employment and change in profitability.
- Furthermore, the South African banking questionnaire is 50% shorter than the UK and Swiss one (see Table 3). The South African life and short-term insurance questionnaires are slightly shorter than the Swiss one. They have in turn half the length of the UK one. The South African investment management survey questionnaire is 30% shorter than the UK one, but slightly longer when the special questions are included during the first and third quarters.

Table 3 Number of variables on the questionnaire

	SA	UK	Switzer- land
Banking	–	72	60
Retail banking	30	–	–
... with special questions	37	–	–
Investment banking	34	–	–
Investment management	51	72	–
... with special questions	77	–	–
Life insurance	–	72	38
Individual life insurance	33	–	–
Group life insurance	29	–	–
Short-term insurance	41	72	44

The European Commission's financial sector survey, which is conducted since 2006, provides another perspective. The EU's questionnaire consists of two sets of questions. The first set of five questions is posed monthly and is the same as those used in the services survey. The second set of ten questions is posed quarterly and refers to operating income, operating expenses, profitability, capital expenditure and the competitive position (EC, 2006: 15).

2.3.2 Questionnaire design and fieldwork

The questionnaire was designed for maximum efficiency and minimum input time from the perspective of the respondent. Only multiple-answer type ticks are required. No figures are requested.

²⁷ Income is described differently in banking (net interest income), insurance (premium income) and investment management (fee income).

Participants only have to tick on the pre-printed questionnaires if, for example, a particular activity (such as total income or number of people employed) is “up”, “the same” or “down” compared to the same period a year ago.

Respondents can return their questionnaires in the supplied pre-paid envelope (32% of total returns in 2007-8), fax it (42%) or by e-mail (26%).

The fieldwork for the surveys is conducted during March, June, September and December. The results reflect developments per calendar quarter, i.e. the first quarter reflect developments during January, February and March; the second quarter reflects April, May and June etc.

2.4 Processing of the results

2.4.1 Weighting

Size weights are used in processing qualitative answers because the importance of the answers is assumed to depend on the size of the reporting unit. The answers from a large firm thus carry more weight than the answers from a small one. Size weights are generally not required in processing quantitative answers because the answers already reflect the size of the reporting unit. Data reported on income, expenditure, number of employees etc. will be larger for large firms than small ones (OECD, 2003: 36-37)

Strictly speaking, the variables to be used as size weights should depend on the survey variable concerned. For example questions about income ought to be weighted by the relative value of income of that unit, questions about employment with the number of persons employed etc. Although this is the ideal, in practice it will be difficult to obtain such information. Firms may also be put off from participating if they have to provide such sensitive information. Consequently one weight – such as the number of employees, turnover or funds under management – is applied to all variables. Practical experience has shown that the survey results are not very sensitive to the choice of the weighting variable (OECD, 2003: 37).

Firm, sector and sampling weights are required to calculate totals for the sub-sectors and the financial sector as a whole. Sampling weights cannot be calculated in South Africa due to the absence of a business register and the use of a non-random sampling method.

Firm weights:

- Banks: Respondents were asked to provide their number of employees when the survey was conducted for the first time in 2002. The results showed that the retail sub-divisions of the retail banks employ in the 10 000s of people compared to – for instance – the 1000s of the business banking sub-divisions, 100s of private banking sub-divisions and 10s of the investment banking sub-divisions. Weighting according to the number of employees was dropped because it produced unsatisfactory results. The results were highly volatile, because the non-response of a particular retail sub-division had a huge impact on the total. Furthermore, the weights of the retail sub-divisions made them so dominant that the other sub-divisions could just as well not have been surveyed. Over time all sub-divisions face similar conditions and consequently reveal similar trends. To get the survey going, it was therefore decided to weigh all reporting units the same. However, the weighting of the banks ought to be revisited. Either the weighting according to the number of employees must be refined (for instance, by log transforming the weights based on the number of employees²⁸) or a better measure (for example, the value of total assets as published in the DI 900 returns of the SARB) must be found.

²⁸ See, for example, Ruppert, 2007: 29-30

- Investment management: The responses of respondents are weighted according to the size of their funds under management. Three weights are allocated, namely “3” for small firms (with funds under management of less than R10bn), “6” for medium-sized firms (R10bn – R20bn) and “10” for large firms (more than R20bn). The results of medium-sized and large firms are not published separately, as the number of responses is too low. To simplify, we refer to the combination of medium-sized and large firms as “large”. In this context, “large” firms denote all firms with fund sizes bigger than R20bn.
- Insurers: Total assets were employed to weigh life insurers as either “10” or “3”. The Financial Mail *Top Companies* special report of 2003 was used to weigh the listed companies and information published on their web sites for unlisted companies. As soon as an acceptable number of diverse short-term insurers participate in the survey, they will be weighted in the same manner as life insurers.

Sector weights:

Figures for the value added on a disaggregated level are available for the manufacturing sector, but not for the financial sector. Statistics SA publishes value added figures for the sector covering finance and insurance, real estate and business services on a quarterly basis. Quantec made use of input-output tables to calculate the value added figure for the sector covering finance and insurance on an annual basis.

Alternative sources of information will have to be used to calculate the relative contribution of the sub-sectors private banking, retail banking, business banking etc. to total retail banking and that of retail banks, investment banks, investment managers etc. to the total financial sector. One good source of information is the value of loans and advances, as well as the income statements of different institutions (banks, life insurers, short-term insurers, private self-administered pension funds) published by the SA Reserve Bank. The financial statements of companies are another source of information.

What makes selecting the weights to calculate a total for the financial sector difficult, is that there is no benchmark for the financial sector. In the case of manufacturing, the sub-sectors have to add up in such a way that the qualitative survey results track the reference series. At present a total for the financial sector cannot be calculated in South Africa, as the work on sector weights has not yet been completed. This is not a unique problem to South Africa. IFO also has the same problem with its services survey in Germany. “The great heterogeneity of the services sector and the incomplete information on the statistical population lead to problems not only in random sampling but also in the methods to correct statistical distortions: weighting and trend extrapolation” (Blau, 2007: 39).

In the UK the survey responses are weighted according to the size of the company and the importance of the activity within the industry. The following sector weights applied during the first quarter of 2003: banks (0.34), finance houses and other lending (0.04), building societies (0.07), general insurance (0.11), life insurance (0.14), securities trading / stock broking (0.11), insurance brokers (0.04), fund management (0.12), commodity brokers (0.01), private equity (0.01) and other financial institutions (0.01) (CBI, 2003: 5, 51). Banks, general insurance, life insurance, stock broking and fund management therefore had a combined weighting of 0.82 in 2003.

2.4.2 Treatment of non-responses

Substitution is used to deal with non-responses. The previous response of a non-responding firm is used, but at half its weighting.

2.4.3 Net balance

The survey results are published in the form of net balances. The net balance is calculated as the percentage of respondents replying “up” less the percentage replying “down”. The percentage of respondents replying “the same” is ignored. Over the years, the net balance statistic has proved to be the most reliable indicator of the direction and size of change in the trend of the respective activities surveyed. The net balance statistic is a qualitative yardstick of the direction and size of the year-on-year growth rate of a particular activity. A positive net balance implies positive year-on-year growth and vice versa. The higher the value of the net balance (positive / negative), the larger the rate of increase / decrease of the activity in question. The survey results reveal trends and not actual figures.

The survey data is at present not seasonally adjusted.

2.4.4 Revisions

On occasion questionnaires reach us after the date of return and after we have processed the results for the current quarter. Processing such questionnaires usually lead to small revisions of the survey results. In the report it is indicated which figures were revised since the previous publication.

In the investment management survey the responses of respondents are weighted according to the size of their funds under management. The weights, which were allocated at the inception of the survey in 2003, applied until the fourth quarter of 2006. Since 2003, the size of funds under management of some firms grew by more than the average of the JSE (Johannesburg Stock Exchange) all share index due to mergers or their superior ability to attract net inflows, particularly institutional and money market funds, and *vice versa*. As a result, some firms fell in different size categories in 2007 than in 2003 and therefore had to be allocated new weights. In all, the number of large firms as a percentage of all firms in the population increased from 20% to 25%. The share of medium-sized firms remained nearly unchanged at 25% (26% previously). At the same time, the number of small firms declined from 54% to 50%.

A linking factor was calculated and used to revise the old data to link the old (i.e. the data prior to the first quarter of 2007 which was calculated according to the old weights) and new data series. The linking factor for every series was calculated by taking the weighted²⁹ average absolute difference between the first and second quarter of 2007 survey results based on the old and the new weights.

2.4.5 Release of the results

Every quarter the survey results are published in a report in the form of tables, charts and a brief interpretation of the findings. The results are published according to the type of activity (e.g. retail banking, investment banking, investment management and life insurance) and not per institution (e.g. ABSA, Investec, Sanlam or Coronation).

The sponsoring firms release the findings in the form of three press statements, namely for banks, investment managers and life insurers. The full report is released on the web when the last press statement goes out in January (with the results of the fourth quarter of the previous year), April (first quarter), July (second quarter) and October (third quarter) and can be downloaded for free.

²⁹ A bigger weight was attached to the second quarter of 2007.

3. Validation of the banking survey results

The last part of the paper deals with the reliability of the survey results. If a comparison between the survey results and official data reveals a good fit, then the survey results are by implication reliable and the methodological challenges handled correctly.

The investigation is limited to the banking survey, as the data series for the other sectors are still too short. The banking survey has been conducted since the first quarter of 2002. After 6 years enough data points have been collected to compare the survey results with the official data.

The survey results are published in the form of net balances, i.e. the percentage of respondents rating a particular activity as higher less the percentage of respondents rating it as lower compared to a year ago. The survey data can therefore vary between -100 (when all respondents rate an activity as lower) and +100 (when all respondents rate it as higher). The survey data is available 6-8 weeks before the official data release, because the survey has a quicker turnaround time than the official survey.

The Bank Supervision Department of the SA Reserve Bank (SARB) collects monthly income and expenditure data from all registered banks. Hereafter we will refer to this data as “the official data”. The bank makes the combined results of the DI 200 forms public with a 2-4 month time lag.

The rationale for a comparison of the survey and official data is that the tightness of the relationship (or fit) indicates the certainty (probability) that a particular set of survey results foreshadows the official data, which is released with a time lag. For example, one wishes to know that if the survey data indicates weaker income growth during first quarter of 2007 that the official data will also reveal a slowdown when it is eventually released.

A graphical analysis will be done and a number of statistical tests conducted to compare the survey and official data.

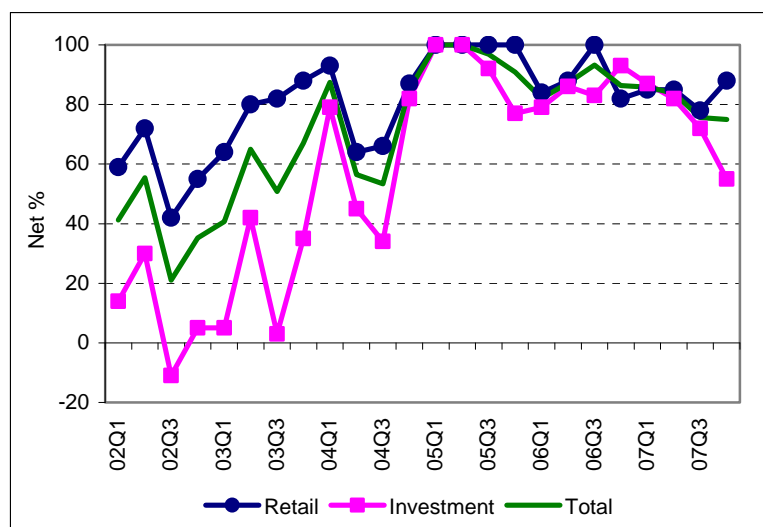
3.1 The data

The survey and corresponding official data is set out in Table A-7.

The official data does not distinguish between retail and investment banks. Therefore a total for the qualitative survey had to be computed. Survey totals were calculated as the weighted sum of the retail and investment bank survey data. The weights are listed in Table A-8. The weights are based on judgment, which was in turn informed by the bi-annual financial statements of the holding companies of the retail and investment banks.

How well do the totals calculated in this manner sum up the constituent parts? The chart below reveals the total calculated, as well as the results for the retail and investment banks separately. On the surface, it appears that the calculated total captures the constituent parts relatively well. However, the biggest shortcoming of applying fixed weights (the Laspeyres formula) to calculate totals is that the average deviates from the actual contribution per quarter. For instance, investment banks may contribute more than 40% of total income during a particularly prosperous quarter, but less than 40% during a quarter when financial markets declined sharply.

Figure 1 Banking survey: Total income



The survey is conducted quarterly. The official data was converted from a monthly to a quarterly frequency by calculating the sum of the months per calendar quarter.

In the case of the survey, respondents have to rate whether a particular activity is “up”, “the same” or “down” compared to a year ago. The official data was transformed to the same format by computing the year-on-year growth rates, i.e. the current quarter compared to the same quarter a year ago.

3.2 Graphical analysis

A casual review of the charts leaves the impression that the survey data tracks the official data relatively well in the case of total income (chart A-1³⁰), net interest income (chart A-2), fee income (chart A-3), operating expenses (chart A-6), provisions (chart A-7) and the cost-to-income ratio (chart A-9) bar a number of outliers. The fit appears to be particularly tight in the case of employment (chart A-8). The fit seems to be weak in the case of investment income (chart A-4) and non-interest income (chart A-5), given that the data series move in opposite directions after initially moving closely together.

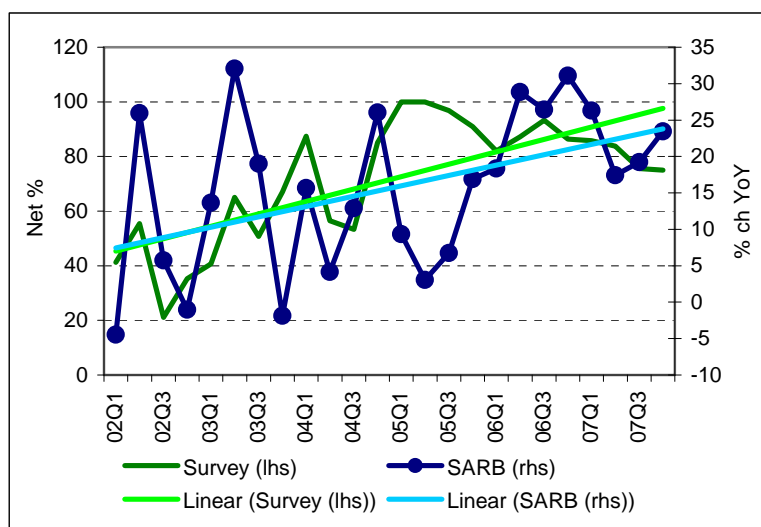
3.3 Calculating the correlation coefficient

The standard way of determining the strength of the relationship between two properties is to calculate the correlation coefficient.

However, before a correlation coefficient can be calculated, the data has to be transformed first. When a correlation coefficient is calculated a linear trend is fitted to the data and the relationship between the linear trends established. For example, except for the outlier of the second quarter of 2005, the data in figure 2 seems to be moving together closely. However, the correlation coefficient is a mere 0.36. The reason for the low coefficient becomes apparent when one fits linear trends to the data. The low correlation coefficient stems from the different gradients of the linear trends.

³⁰ The letter “A” is included in the figure number when the table appears in the appendix.

Figure 2 The linear relationship between the survey and official data in the case of total income



Source of the data: BER surveys

It is only appropriate to use the correlation coefficient as a measure of the strength of the relationship between different data series if a linear trend provides the best fit for the raw (untransformed) data. A linear trend, in turn, requires a normal distribution of the raw data.

The descriptive statistics of the survey data reveal that only the distributions of the operating expenses data in the case of the survey data and the employment data in the case of the official statistics are normal (see Table A-9).

Furthermore, the format of the survey data (presented as net balances that could vary between -100 and +100) differs from that of the official data (the year-on-year growth rate that has an indefinite range).

One way of dealing with outliers, non-linear data, not normal distributed data and data with different formats is to log transform it. By stabilising the variance of the data, linearising it and normalising positively skewed data, a log transformation prepares the data for correlation testing.

The survey and official data includes negative values. As the log of any negative number or number less than one is undefined, a constant was added to the survey and official data to increase the minimum to +1.00.

The log transformed data was tested once more for normality as a log transformation may overcompensate in the case of positively skewed data (e.g. the official data of investment and non-interest income) and inadvertently causes the distribution to become even less normal. The log transformation has made the distribution more normal, but it remained too peaked (kurtosis is greater than 0.5) and there are still too many low values (skewness is less than -0.5) to unconditionally characterise the distribution as normal.

The correlation coefficient reveals that there is a strong positive relationship between the survey and the official data in respect of investment and non-interest income (see Table 6). There are also positive, but weaker relationships in the case of total income, operating expenses and employment. There is a weak positive relationship in the case of net-interest income and provisions, no relationship

in the case of fee income and the cost-to-income ratio and a weak negative relationship in the case of net profit after tax.

Table 4 The correlation coefficient of the log transformed survey and official data

	Correlation coefficient
Total income	0.42
Net interest income	0.19
Fee income	0.01
Investment income	0.78
Non-interest income	0.78
Operating expenses	0.39
Provisions	0.16
Employment	0.35
Cost-to-income ratio	0.02
Net profit after tax	-0.16

The low correlation coefficient in the case of so many variables could be attributed to, among other things:

- The time period of 5 years or 20 quarters is too short. The South African economy in general and the financial sector in particular experienced one of its most boisterous times since the 1960s during the time period under review. This may be the major reason why the distribution of the data is not normal.
- A high non-response rate, equal firm weights and the absence of sub-sector weights may have adversely affected the quality of the survey data.
- The high standard deviation of the official data indicates that the data is quite volatile (see Table 7). The high volatility can be attributed to the fact that the performance of the financial sector often changes drastically between subsequent quarters.

How does this finding compare with those of other sectors? The comparison was confined to the UK, France, Germany and South Africa as (1) these countries have many years' experience in conducting business tendency surveys and (2) the OECD publishes their business tendency survey and value added per economic sector data in its *Main Economic Indicators* (MEI). To make the results comparable with that of the article, the analysis was limited to the period between the first quarter of 2002 and the fourth quarter of 2007 and the raw data was log transformed. Manufacturing production exhibited a correlation coefficient of 0.94 in Germany, 0.84 in France, 0.75 in the UK and 0.46 in South Africa.

However, it is unfair to compare the financial and manufacturing surveys, as the latter have been conducted for a much longer time period and much more resources go into its production. The only "new" sector survey for which the OECD publishes data is for the services sector of the UK. The correlation coefficient of services is -0.26 in the UK. With respect to an "old" but non-manufacturing sector, the correlation coefficient of retail sales is 0.58 in South Africa.

Another reason why the comparison is unfair is that it sets the disaggregated results of the financial sector against the aggregated results of the other sectors. The disaggregated results of the other sectors may also produce lower correlation coefficients than the aggregated results analysed

here. Furthermore, a quantitative aggregate measure of the performance of the financial sector that is *on par* with that of manufacturing production and retail sales does not currently exist. The development of such a reference series for the financial sector may produce similar high correlation coefficients in future.

Final remarks

The way forward for the financial sector survey in South Africa will centre on measures to raise the profile of the financial sector's performance. A quantitative measure of the performance of the financial sector needs to be compiled from the available data. Such a reference series will produce the missing sector weights and could serve as a benchmark for the survey results. The method of substitution and firm weightings that produces the closest fit between the survey results and the reference series could then be uncovered.

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Appendix

Table A-1 Coverage of the financial sector survey per SIC code

SIC Code	Description	Covered in ...
81	<u>Financial intermediation, except insurance and pension funding</u>	
811	Monetary intermediation	
81110	Central banking	X
81121	Other monetary intermediation	
	Commercial and other banking	RetB.
	Land and Agricultural Bank of SA, Post Office Savings Bank	X
819	Other financial intermediation nec.	
8191	Leasing finance	RetB.
81920	Financial intermediation primarily concerned with making loans by institutions not involved in monetary intermediation	
	Credit granting outside the banking system, consumer buying associations	X
	Unit trust management companies	InvMan.
81990	Financial intermediation primarily concerned with distributing funds other than by making loans	
	Holding or investment companies, self finance companies, pawn broking	X
	Investment brokers	X
	Investment in securities, i.e. unit trust schemes, shares, bonds, bills etc.	InvMan.
82	<u>Insurance and pension funding</u>	
821	Insurance and pension funding, except compulsory social security	
82110	Life insurance	
	Life insurance	LifIns.
	Reinsurance	X
82120	Pension funding	
	Provision of retirement incomes, incl. the collection and investment of funds	LifIns.
82130	Medical aid funding	X
82190	Other insurance	
	Insurance of non-life business, i.e. accident, fire, property, motor, liability etc.	STIns.
83	<u>Activities auxiliary to financial intermediation</u>	
831	Activities auxiliary to financial intermediation, except insurance and pension funding	
83110	Administration of financial markets other than by public authorities	
	Stock exchange	X
83120	Security dealing activities	
	Stockbrokers, members of the JSE	InvMan
	Other security dealing, except on own account	InvB.
83190	Activities auxiliary to financial intermediation nec.	
	Boards of executors and trust companies	X
	Foreign exchange, bullion and commodity dealers	InvB.
	Financial and mortgage advisors	X

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SIC Code	Description	Covers
832	Activities auxiliary to insurance and pension funding	
8320	Activities closely related to the management of insurance and pension funding	
	Insurance agents and brokers	X
	Actuaries, salvage administration	LifeIns
<p>X = not covered</p> <p>RetB. = retail banking survey, InvB. = investment banking survey, InvMan. = investment management survey, LifeIns = life insurance survey, STIns = short term insurance survey</p> <p>Source of SIC codes and their description: Potgieter <i>et.al.</i>, 1997: 90-91</p>		

Table A-2 Number of businesses in the target population and on the panel – second quarter of 2008

Group	Retail banks							Investment banks						Total banks	Investment management				Life insurance			Short term insurance	Total
	Private	Micro-lending	Retail	Business	Corporate	Asset & fleet	Total	Corporate finance	Private equity	Project finance	Treasury	Stock broking	Total		Small	Medium	Large	Total	Group	Individual	Total		
ABSA	1	1	1	1		1	5		1	1	1	1	4	9			1	1		1	1	1	12
First Rand	2		1	1	1	1	6	1	1	1	1	1	5	11		1	1	2	1	2	3	1	17
Foreign	1		2				3	9			1	5	15	18	1	1		2				2	22
Hollard																				1	1	1	2
Investec	1						1	1	1	1	1	5	6			1	1						7
Liberty															1		1	2	1	1	2		4
Metropolitan																1	1		1	2	3		4
Nedbank	2		2	1		2	7	1	1	1	1	5	12			2	2						14
Old Mutual															6	1	1	8	1	1	2	1	11
Sanlam								1				1	1	1	1	1	3	1	3	4	2	10	
Standard Bank	2		1	1	1	1	6	1	1	1	1	5	11										11
Independent		3	2				5	4	2			3	9	14	33	6	3	42		5	5	8	69
Total universe	9	4	9	4	2	5	33	18	7	5	6	13	49	82	42	13	9	64	5	16	21	16	183
Total on panel	2	3	7	3	0	1	15	4	3	1	3	0	11	26	17	8	6	31	3	9	12	8	77

Table A-3 Banking questionnaire

	South Africa	United Kingdom	Switzerlan d
Rating of the overall business situation ^a	√	√	√ ^b
Income			
Change in overall business / demand for banking services ^c	√ ^d	√ ^e	√ ^f
Change in total income ^c	√		√
Change in net interest income ^c	√	√	√
Change in the interest margin		√ ^g	√ ^g
Change in fee and commission income ^c	√	√	√ ^h
Change in average commissions / commission rates		√ ^g	√ ^g
Change in investment income ^c	√		
Expenditure			
Change in total operating expenses (excluding the cost of funding) ^c	√	√	
Change in the average operating cost per transaction		√	
Change in the value of non-performing loans ^c	√	√	
Change in the provision for doubtful debts ^c	√		
Change in employment ^c	√	√	√
Change in staff costs in proportion to total costs ^c		√	√
Profitability and efficiency			
Change in net profits after tax / profitability ^c	√	√	√
Change in the cost-to-income ratio ^c	√		√
Other			
Change in credit standards / credit rating of borrowers ⁱ	√		√ ^f
Rating of reasons for change in credit standards	√		
Change in the opportunities for refinancing ⁱ			√
Change in competitiveness ⁱ	√ ^{j, k}	√ ^l	√
Change in training expenditure		√	
Change in capital expenditure over the next 12 months	√ ^j	√ ^m	
Change in IT expenditure over the next 12 months	√ ^j	√	
Rating of reasons for capital expenditure over the next 12 months		√	
Rating of factors limiting capital expenditure over the next 12 months		√	
Rating of IT, spatial, front office staff and back office staff capacity ⁱ			√
Rating of factors limiting business growth over the next 12 months		√ ⁿ	

- a) In SA, respondents have to select satisfactory or unsatisfactory. In the UK and Switzerland, the choice is between good, satisfactory and poor.
 - b) Respondents also have to distinguish between domestic and foreign clients, as well as indicate the expected change in business.
 - c) With respect to the current quarter and expectations for the next quarter, respondents have five answer options in Switzerland compared to three in SA and the UK. In Switzerland, respondents are requested in a footnote to use the answering options “much higher” and “much lower” only for extraordinary changes.
 - d) Only ask this to investment banks. They have to differentiate between treasury and specialised finance, private equity, corporate finance, project finance and stock broking. In the case of retail banks, a special question on business volumes in 12 months’ time is posed twice a year.
 - e) Respondents have to differentiate amongst industrial and commercial enterprises, financial institutions, private individuals and overseas customers. Furthermore, respondents also have to rate the present level of business with all and overseas customers.
 - f) Respondents have to distinguish between domestic and foreign clients. In the case of domestic clients, they furthermore have to differentiate between private clients, corporate clients and SME’s (small and medium-sized enterprises). Respondents are also quizzed on how the **volumes** of securities transactions, assets under management and authorised loans have changed during the current quarter. A question (with three answer options) on the expected change in **loans** to these customers is also posed. The expected change (with three answer options) in **business** is also surveyed.
 - g) With reference to the current and the next quarter in the UK and only the next quarter in the case of Switzerland. There are three answering options in Switzerland.
 - h) Also has to differentiate between fee income from asset management and net trading income.
 - i) Three answering options in Switzerland.
 - j) Question is posed twice a year.
 - k) Two of the listed reasons for the change in credit standards refer to competition.
 - l) Respondents have to distinguish between other European competitors and competitors outside Europe.
 - m) Respondents have to distinguish between (i) land and buildings, (ii) vehicles, plants and machinery and (iii) information technology.
 - n) Furthermore, respondents have to differentiate between the total and overseas, e.g. to what extent do respectively the total and the overseas level of demand limit the firm’s ability to increase its level of business over the next 12 months.
-

Table A-4 Investment management questionnaire

	South Africa	United Kingdom
Rating of the overall business situation ^a	√	√
Activity		
Change in the volume of business ^b		√ ^{c, d}
Change in net inflows ^b	√ ^e	
Income	√	
Change in total income ^b	√	
Change in average management fees charged / value of fee income ^b	√	√
Change in base management fees ^b	√	
Change in performance fees ^b	√	
Change in investment or trading income ^b		√
Expenditure		
Change in total expenses / operating costs (excluding the cost of funds) ^b	√	√
Change in employment ^b	√	√
Change in portfolio managers and analysts ^b	√	
Change in the other staff ^b	√	
Change in back-office costs ^b	√	
Change in IT and systems costs ^b	√	√
Change in marketing costs ^b	√	√
Change in other distribution costs ^b	√	
Change in bonuses paid ^b	√	
Profitability		
Change in profitability / net profits after tax ^b	√	√
Change in net profits from local operation ^b	√	
Change in net profits from foreign operation ^b	√	
Change in operating margins relative to funds under management ^b	√	
Change in remuneration costs relative to inflation ^b	√	
Change in staff costs relative to total costs ^b		√
Other		
Change in capital expenditure	√ ^{b, f, g}	√ ^h
Rating of reasons for capital expenditure over the next 12 months		√
Rating of factors limiting authorisation of capital expenditure over the next 12 months		√
Change in IT expenditure over the next 12 months ^b		√
Change in the demand for products	√ ^{f, i}	
Change in the demand for foreign exposure	√ ^f	
Change in the opportunities to introduce new funds	√ ^f	
Change in the restrictiveness of the regulatory environment	√ ^f	
Change in competitiveness ^b		√ ^j
Change in training expenditure ^b		√
Rating of factors limiting business growth over the next 12 months		√ ^k

- a) In SA, respondents have to select satisfactory or unsatisfactory. In the UK the choice is between good, satisfactory and poor.
 - b) With respect to the current quarter and expectations for the next quarter, respondents have three answer options.
 - c) Respondents have to differentiate amongst industrial and commercial enterprises, financial institutions, private individuals and overseas customers. Furthermore, respondents also have to rate the present level of business with all and overseas customers.
 - d) Respondents have to distinguish between domestic and foreign clients. In the case of domestic clients, they furthermore have to differentiate between private clients, corporate clients and SME's (small and medium-sized enterprises). Respondents are also quizzed on how the **volumes** of securities transactions, assets under management and authorised loans have changed during the current quarter. A question (with three answer options) on the expected change in **loans** to these customers is also posed. The expected change (with three answer options) in **business** is also surveyed.
 - e) Respondents have to distinguish between total, institutional, unit trust and private client net inflows. In the case of unit trust net inflows, they also have to differentiate between institutional inflows, retail inflows and inflows excluding money market funds.
 - f) These special questions are posed twice a year. Respondents have to rate the current quarter and expectations for in 12 months' time.
 - g) Respondents have to differentiate between domestic and foreign infrastructure development.
 - h) Respondents have to indicate the change in the next 12 months and distinguish between (i) land and buildings, (ii) vehicles, plants and machinery and (iii) information technology.
 - i) Respondents have to distinguish between the demand for (i) general equity index / tracker funds, (ii) absolute return funds, (iii) fixed income funds, (iv) specialist equity funds, (v) style funds, (vi) guaranteed funds, (vii) alternative products e.g. hedge funds and (viii) balanced funds.
 - j) Respondents have to distinguish between other European competitors and competitors outside Europe.
 - k) Furthermore, respondents have to differentiate between the total and overseas, e.g. to what extent do respectively the total and the overseas level of demand limit the firm's ability to increase its level of business over the next 12 months.
-

Table A-5 Insurance questionnaire

	South Africa		United Kingdom	Switzerland
	Life	General		and
Rating of the overall business situation ^a	√	√	√	√ ^b
Inflows				
Change in the volume of business ^c			√ ^d	√ ^b
Change in the number of contracts ^c				√
Change in the premium rate ^c				√
Change in premium income ^c	√ ^e	√ ^f	√	√
Change in reinsurance premiums outwards ^c		√		
Change in new business premium income ^c	√ ^g	√	√	
Change in investment income ^c	√	√	√	√
Change in lapses ^c	√			
Change in commission income ^c		√ ^g	√	
Outflows				
Change in benefits / payable claims ^c	√	√ ^h	√ ⁱ	√
Change in reinsurers' share of claims paid		√		
Change in commissions paid ^c	√	√	√	
Change in the value of surrenders ^c	√		√	√ ^j
Change in operating costs (excluding the costs of funds) ^c	√ ^k	√ ^k	√	
Change in the average operating cost per transaction			√	
Change in the admin expenses to premium income ratio ^c	√			√ ^l
Change in employment ^c	√ ^m	√	√	√
Change in staff costs in proportion to total costs ⁿ			√	
Rating of staff capacity ⁿ				√
Profitability				
Change in net profits after tax / profitability ^c	√	√	√	√
Change in the value of new business ^c	√			
Change in the profitability of the risk business ^c	√			
Change in underwriting results ^c		√		
Change in the claims ratio ^c		√		
Change in the solvency margin ^c		√		
Other				
Change in technical reserves ^c				√
Change in competitiveness			√ ^o	
Change in training expenditure			√	
Change in capital expenditure over the next 12 months			√ ^p	
Change in IT expenditure over the next 12 months			√	
Rating of reasons for capital expenditure over the next 12 months			√	
Rating of factors limiting capital expenditure over the next 12 months			√	
Rating of factors limiting business growth over the next 12 months			√	

- a) In SA, respondents have to select satisfactory or unsatisfactory. In the UK and Switzerland, the choice is between good, satisfactory and poor.
 - b) Respondents have to distinguish between life and non-life business. In the case of life business, they have to rate individual life, group life and funds related business separately. In the case of non-life business, they have to rate accident and health, motor vehicle, general liability, property and other insurance separately.
 - c) With respect to the current quarter and expectations for the next quarter, respondents have five answer options in Switzerland compared to three in SA and the UK. In Switzerland, respondents are requested in a footnote to use the answering options “much higher” and “much lower” only for extraordinary changes.
 - d) Respondents have to differentiate amongst industrial and commercial enterprises, financial institutions, private individuals and overseas customers. Furthermore, respondents also have to rate the present level of business with all and overseas customers.
 - e) Respondents also have to make a distinction between risk and investment business.
 - f) Respondents have to distinguish between personal / individual and commercial and corporate gross premium income.
 - g) With respect to reinsurance.
 - h) Respondents also have to distinguish between the number and the average size of motor and non-motor claims paid.
 - i) The value of insurance claims only applies to general insurance, i.e. not to life insurance.
 - j) Refer to as the loss ratio.
 - k) Refer to admin and marketing expenses.
 - l) Refer to the expense ratio.
 - m) Respondents have to distinguish between (i) the number of full-time admin employees and (ii) the number of in-house agents.
 - n) Three answering options in Switzerland.
 - o) Respondents have to distinguish between other European competitors and competitors outside Europe.
 - p) Respondents have to distinguish between (i) land and buildings, (ii) vehicles, plants and machinery and (iii) information technology.
 - q) Furthermore, respondents have to differentiate between the total and overseas, e.g. to what extent do respectively the total and the overseas level of demand limit the firm’s ability to increase its level of business over the next 12 months.
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Table A-6 The South African, UK and Swiss questionnaires compared

	Covered by all 3 countries	Covered by 2 of the 3 countries
Banking questionnaire		
Rating of the overall business situation	√	
Change in overall business / demand for banking services / total income	√	
Change in net interest income	√	
Change in the interest margin		√
Change in fee and commission income	√	
Change in average commissions / commission rates		√
Change in total operating expenses (excluding the cost of funding)		√
Change in the value of non-performing loans		√
Change in employment	√	
Change in staff costs in proportion to total costs		√
Change in net profits after tax / profitability	√	
Change in the cost-to-income ratio		√
Change in credit standards / credit rating of borrowers	√	
Change in competitiveness	√	
Change in capital expenditure over the next 12 months		√
Change in IT expenditure over the next 12 months		√
Total	8	8
Insurance questionnaire		
Rating of the overall business situation	√	
Change in the volume of business		√
Change in premium income	√	
Change in new business premium income		√
Change in investment income	√	
Change in commission income		√
Change in benefits / payable claims	√	
Change in commissions paid		√
Change in the value of surrenders	√	
Change in operating costs (excluding the costs of funds)		√
Change in the admin expenses to premium income ratio		√
Change in employment	√	
Change in net profits after tax / profitability	√	
Total	7	6

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	Covered by both countries
Investment management questionnaire	
Rating of the overall business situation	√
Change in the volume of business / net inflows	√
Change in average management fees charged / value of fee income	√
Change in total expenses / operating costs (excluding the cost of funds)	√
Change in employment	√
Change in IT and systems costs	√
Change in marketing costs	√
Change in profitability / net profits after tax	√
Change in capital expenditure	√
Total	9

Table A-7 Corresponding survey and official data

Survey (qualitative) data	Official (quantitative) data (DI 200 returns of the SARB)
Total income	Net interest plus non-interest income (own calculation)
Net interest income	Net interest turn (item 33)
Fee income	Fee income (item 45)
Investment income	The sum of investment & trading positions (item 35) and net mark-to-market adjustments (item 42)
Non-interest income	Non-interest income (item 34)
Operating expenses	Operating expenses (item 48)
Provisions	Provisions (item 54)
Employment	Number of personnel in employment at the end of the month (item 80)
Cost-to-income ratio	Operating expenses as a percentage of total income (own calculation)
Net profit after tax	Net income after tax (item 71)

Table A-8 Weights to calculate totals for the qualitative survey

	Retail banks	Investment banks	Total
Total income	–	–	1.00 ¹
Net interest income	0.6	0.4	0.50
<i>Fee income</i>	0.8	0.2	0.35
<i>Investment income</i>	0.5	0.5	0.15
Non-interest income	0.2	0.8	0.50 ²
Operating expenses	0.8	0.2	1.00
Provisions	0.6	0.4	1.00
Employment	0.95	0.05	1.00
Cost-to-income ratio	0.6	0.4	1.00
Net profit after tax	0.8	0.2	1.00

¹ Total income = net interest income + non-interest income
² Non-interest income = fee income + investment income

Table A-9 Descriptive statistics of the survey data

	Mean	Median	Standard deviation	Kurtosis	Skewness
Survey data: net %					
Total income	71 ¹	79 ¹	22.41	-0.58 ³	-0.65 ⁵
Net interest income	47 ¹	66 ¹	41.08 ²	-1.21 ³	-0.50
Fee income	62	61	25.85	0.23	-0.73 ⁵
Investment income	32	30	37.32 ²	-0.52 ³	-0.58 ⁵
Non-interest income	26	30	13.95	0.01	-0.78 ⁵
Operating expenses	53	55	15.32	-0.32	-0.20
Provisions	12	10	35.18 ²	-1.19 ³	-0.10
Employment	22	26	29.82	-0.68	-0.53 ⁵
Cost-to-income ratio	-38 ¹	-48 ¹	40.96 ²	2.89 ⁴	1.73 ⁶
Net profit after tax	74 ¹	81 ¹	19.16	-1.02 ³	-0.54 ⁵
Official data: % change YoY					
Total income	16	17	10.89	-1.00 ³	-0.28
Net interest income	16	21	18.53	-1.11 ³	-0.40
Fee income	15	15	8.90	2.44 ⁴	0.91 ⁶
Investment income	39 ¹	24 ¹	72.16 ²	0.81 ⁴	1.02 ⁶
Non-interest income	20	17	27.99	13.90 ⁴	3.26 ⁶
Operating expenses	13	12	5.04	-0.61 ³	-0.19
Provisions	27 ¹	-2 ¹	78.25 ²	0.98 ⁴	1.17 ⁶
Employment	2	2	4.72	-0.48	-0.41
Cost-to-income ratio	1	0	10.76	1.75 ⁴	0.69 ⁶
Net profit after tax	41 ¹	26 ¹	100.40 ²	5.61 ⁴	1.78 ⁶

YoY = quarter on same quarter a year ago

¹ the difference between the mean and median is large (assumed to be >5)

² the standard deviation is high (assumed to be >30)

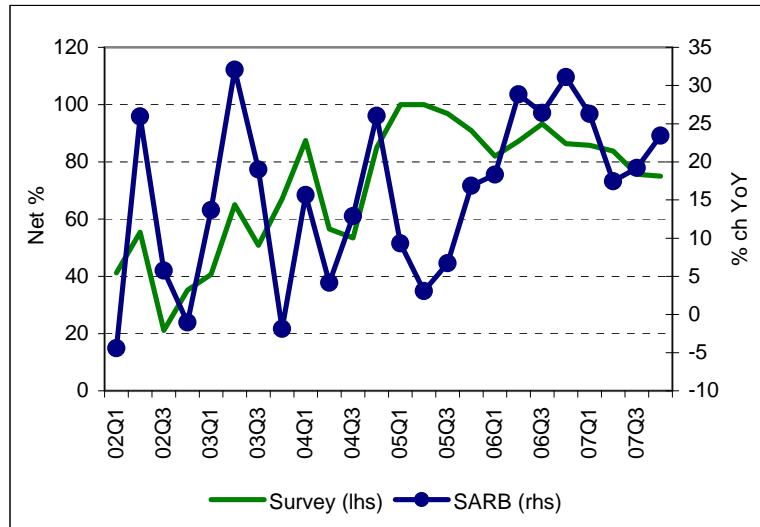
³ the data is too flat (assumed to be > -0.5)

⁴ the data is too peaked (assumed to be >0.5)

⁵ there are too many low / negative numbers (assumed to be > -0.5)

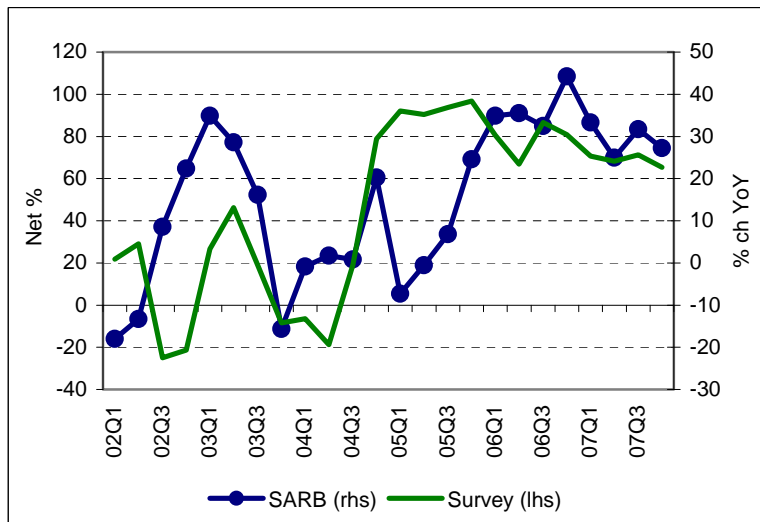
⁶ there are too many high / positive numbers (assumed to be > 0.5)

Figure A-1 Total income



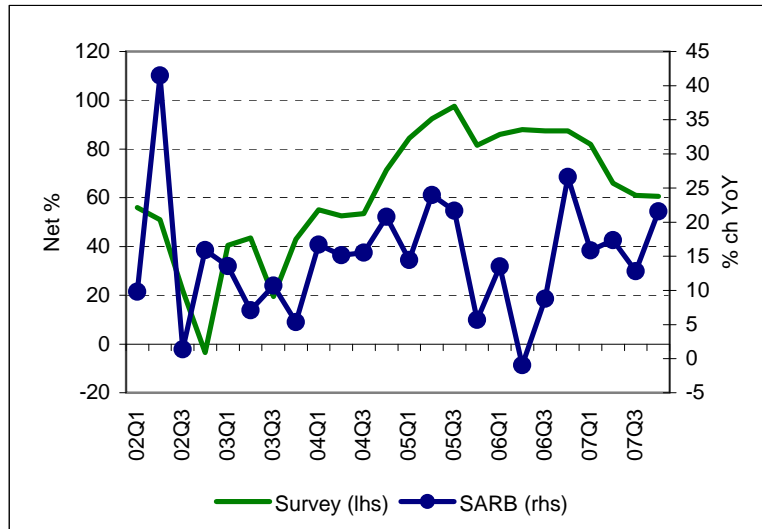
Source of the data: BER surveys and SARB DI 200 returns

Figure A-2 Net interest income



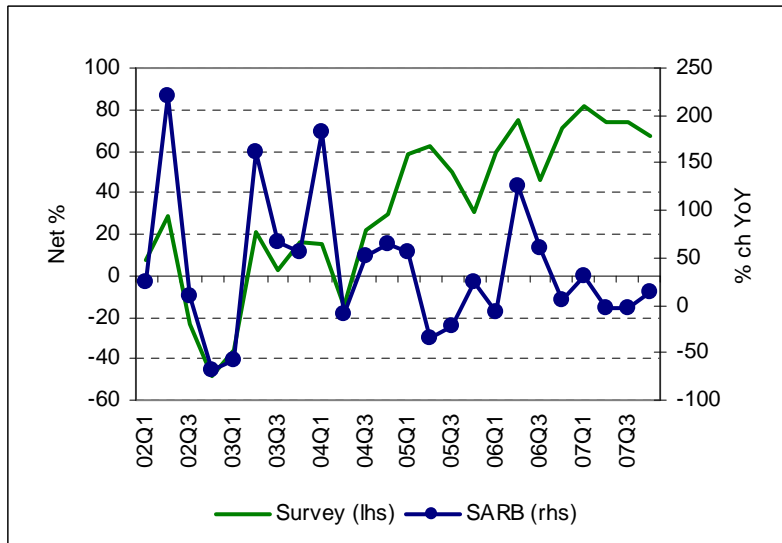
Source of the data: BER surveys and SARB DI 200 returns

Figure A-3 Fee income



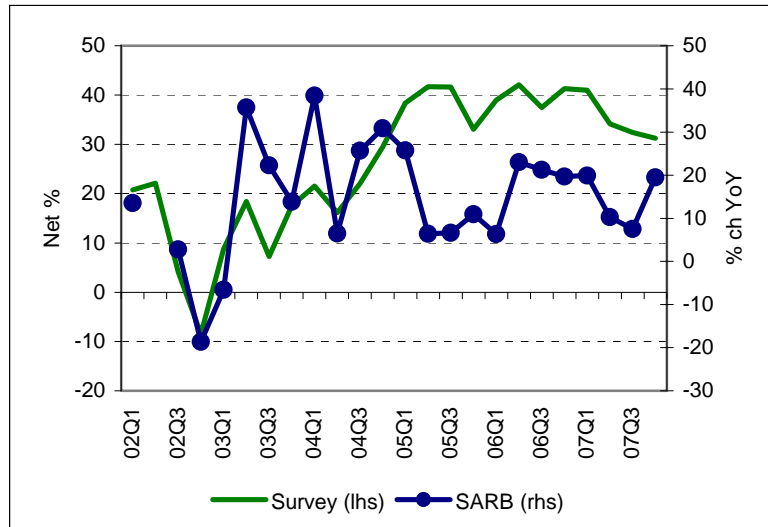
Source of the data: BER surveys and SARB DI 200 returns

Figure A-4 Investment income



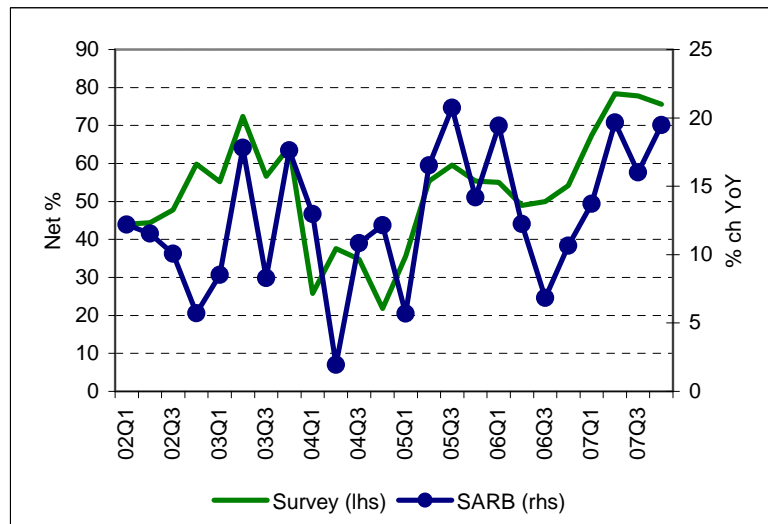
Source of the data: BER surveys and SARB DI 200 returns

Figure A-5 Non-interest income



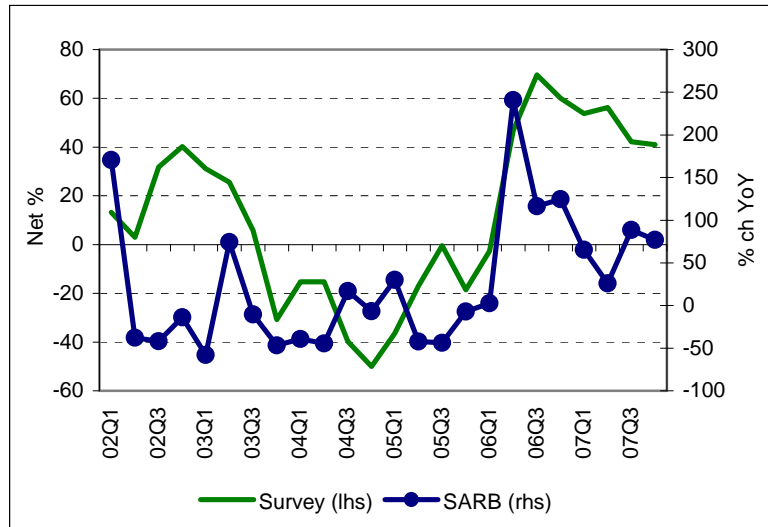
Source of the data: BER surveys and SARB DI 200 returns

Figure A-6 Operating expenses



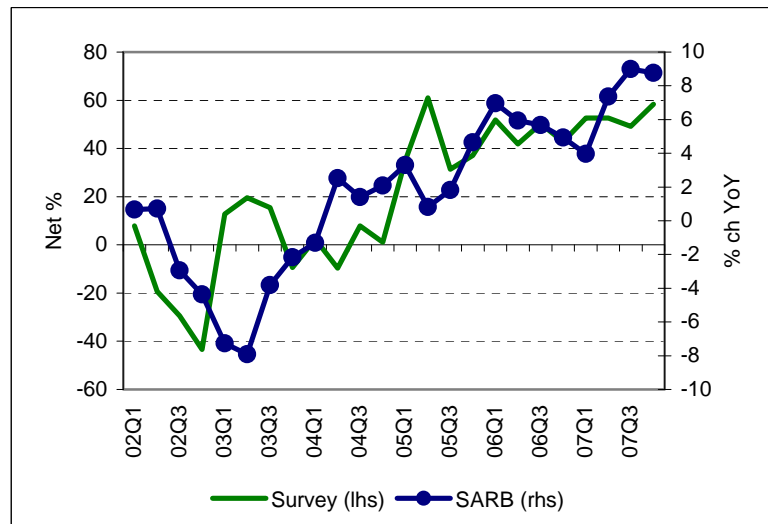
Source of the data: BER surveys and SARB DI 200 returns

Figure A-7 Provisions



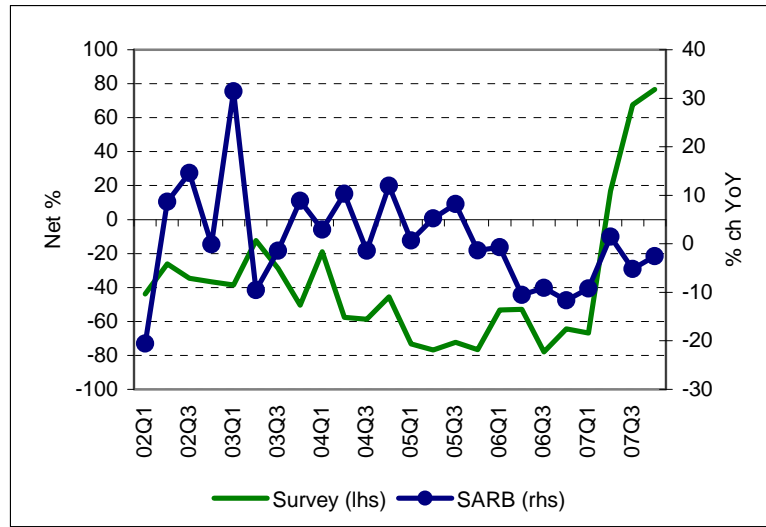
Source of the data: BER surveys and SARB DI 200 returns

Figure A-8 Employment



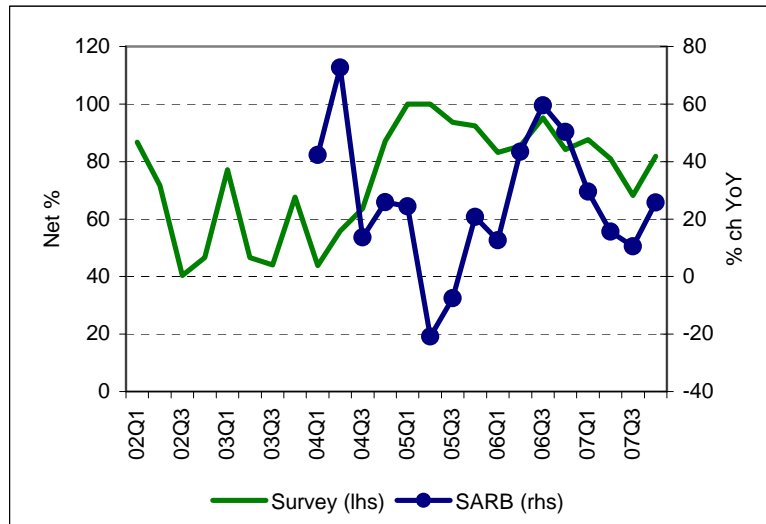
Source of the data: BER surveys and SARB DI 200 returns

Figure A-9 Cost-to-income ratio



Source of data: BER survey and SARB DI 200 returns

Figure A-10 Net profits after tax



Source of data: BER survey and SARB DI 200 returns